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June 3, 1993

Ms. Cheryl Smith
U.S. EPA Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Re: Work Assignment No. C04054 - Olin Corporation, McIntosh, Alabama - Technical Review and Comments Report of the Draft Feasibility Study Report
Document Control No. C04054-OC-TR-005

Dear Ms. Smith:

In partial fulfillment of Work Assignment No. C04054, Dynamac Corporation is pleased to submit two copies of the Technical Review and Comments (TRC) Report prepared by PRC Environmental Management, Inc., on the Draft Feasibility Study Report for the Olin Corporation, McIntosh, Alabama, site. A copy of the TRC Report is also enclosed on a diskette in WordPerfect 5.1 format.

If you have any questions or comments, please contact Bob Martin or me at (404) 681-0933.

Sincerely,

DYNAMAC CORPORATION

David L. Rusher
Regional Manager

DLR/vj

cc: Ken Meyer, EPA Region IV Project Officer
Dennis Escher, Dynamac TES Program Manager
Robert L. Martin, Dynamac Work Assignment Manager
TES WA File

TECHNICAL REVIEW COMMENTS
DRAFT FEASIBILITY STUDY REPORT
OLIN CORPORATION, MCINTOSH, ALABAMA
PREPARED BY WOODWARD-CLYDE CONSULTANTS, INC.

PRC Environmental Management, Inc. (PRC), under U.S. Environmental Protection Agency (EPA) Contract Number 68-W9-0005, performed a technical review of the Draft Feasibility Study (FS) Report for the Olin Corporation (Olin) site, McIntosh, Alabama. Woodward-Clyde Consultants, Inc. prepared the Draft FS Report for Olin Corporation. The Draft FS Report includes: (1) a summary of the nature and extent of contamination and baseline risk determined during the remedial investigation (RI), (2) identification of remedial action objectives, (3) preliminary identification and screening of process options, and (4) a detailed analysis of remedial alternatives. Olin has submitted this Draft FS Report to EPA for review. Upon receipt of EPA's comments on the Draft FS Report, Olin will prepare the Final FS Report.

PRC reviewed this draft FS report according to: (1) the requirements set forth in the Administrative Order on Consent; (2) the objectives and methodologies outlined in Olin's RI/FS Project Plan, May 1991; (3) EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (EPA/540/G-89/004, October 1988); and (4) the results presented in Olin's Draft RI Report for the McIntosh Plant site, February 1993. All references cited in the text are listed at the end of this document.

After reviewing the report, PRC has determined that the remedial alternatives selected by Olin for Operable Unit (OU)-1 groundwater and OU-2 sediments (wastewater ditch) are substantiated by the information presented in the report. A remedial alternative for OU-2 basin sediments was not selected by Olin due to ecological concerns raised by EPA and Olin. A remedial alternative for basin sediments will be selected once additional ecological sampling data has been collected and evaluated. PRC's comments regarding the Draft FS are presented below and are presented as general and specific comments.

GENERAL COMMENTS

1. The report thoroughly discusses the analysis of remedial alternatives; however, it fails to make any recommendations as to what the selected remedies should be. Olin's selected alternatives were referenced in the transmittal letter that accompanied the report but no

recommended alternatives were presented in the report. Recommended alternatives and justification for the recommendations should be included in the report.

2. Section 3.0 discusses the development and screening of remedial action alternatives based on cost. Costs are described as either low, medium, or high, yet no discussion of what specific cost ranges constitute low, medium, or high costs is presented. Also, no information regarding cost determination methods is included in Section 3.0. Necessary information includes cost estimate methodology, assumptions made, sources from which costs were obtained, and historical cost data. These issues should be clarified in the report.

3. The report discusses the presence of a layer of mercury-contaminated brine at the base of the Alluvial aquifer. The draft RI report failed to fully determine the extent of this contamination. Therefore, the extent of contamination caused by this secondary mercury source, as well as the effectiveness of the present corrective action that is being implemented should be determined before implementing either groundwater alternative C1 or C3.

SPECIFIC COMMENTS

1. **Section 1.2.1, Page 1-12, Paragraph 2**. The text states that the corrective action program is effective at controlling migration of contaminants from any known past or current sources. It further indicates that the sanitary landfills have not been identified as a source of groundwater contamination, and that the groundwater flow patterns indicate that the existing monitoring well network should detect any releases from these landfills. This information should be reconciled with comments made on the draft RI report, which suggested that to fully control groundwater flow in the vicinity of the sanitary landfills either the pumping rates of the corrective action wells should be increased or an additional corrective action well should be installed near the landfills to control movement of the groundwater from this potential source.

2. **Section 1.3.1.2, Page 1-27, Paragraph 3**. The text states that hexachlorobenzene and mercury were detected in the sanitary landfill samples. If it is believed, and the data supports, that the sanitary landfills are not a significant continuing source of contamination, this should be stated.

3. **Section 2.2.2.3, Page 2-10, Paragraph 3**. This paragraph refers to EPA's Office of Solid Waste and Emergency Response (OSWER) Directive 355.0-26 as an Applicable or Relevant and Appropriate Requirement (ARAR) for control of emissions from air strippers. No such directive number exists. The directive number should be 9355.0-28 "Control of Air Emissions from Superfund Air Strippers at Superfund Ground Water Sites." This reference should be corrected.

4. **Section 2.3.2, Page 2-24, Paragraph 1**. The text discusses the soils west of the former crop protection chemicals (CPC) plant area and states that it is assumed that any remedial action for these soils would consist of extending the cap that exists over the adjacent CPC plant area and that other alternatives were not developed. The report does not adequately explain why other alternatives, including no action, were not considered for this area.

5. **Section 2.3.3, Page 2-26, Paragraph 4**. The text states that contaminant concentrations were detected in the two smaller ponds north of the basin at levels lower than those of the basin. Because no sediment clean-up criteria are established, the report should provide further justification for not presenting remedial alternatives for these two areas.

6. **Section 2.4.3, Pages 2-32 and 2-33, "Summary of Retained Process Options"**. This table summarizes the technologies and process options for the General Response Actions for OU-1 and OU-2. The following changes should be made to the table:

   - The heading "GRA" should be defined either by spelling out in the title or including a footnote.
   - The discharge action technology type is off-site discharge. This should be clarified.
   - The use of "not applicable" under technology types and process options for No Action is confusing. The word "none" should be used instead.

7. **Table 2-3, Page 3 of 8**. This table includes a reference to OSWER Directive 355.0-26 as an ARAR for air. This directive number is incorrect. The correct directive number is 9355.0-28. The table should be changed to reflect the correct number.

8. **Table 2-7, Page 1 of 10**. This table outlines the analysis of remedial alternatives. The institutional action "deed restrictions" is retained while the institutional action "alternative

residential water supply" is screened out. These two actions are interdependent and one should not be retained without the other.

9. **Table 2-7, Page 8 of 10.** The statement is made in the screening comments for evaluation of alternatives that distillation is not applicable to low concentrations. This statement is not correct as distillation is used to separate a wide range of organics and inorganics and is particularly useful in low concentration situations. This statement does not support the deletion of distillation from the list of technologies and process options.

10. **Table 2-7, Page 8 of 10.** Another screening comment included in this table refers to the uncertainty of oxidation of chemicals of concern. The products and byproducts formed as a result of oxidation of organic site contaminants can be determined through basic organic chemical principles. This fact should be acknowledged in the table.

11. **Table 2-10, Page 1 of 7**. This table summarizes the initial screening of process options for OU-1 groundwater. The evaluation of the no action alternative implies that implementability and cost are not applicable to this option; however, all options should be evaluated against all criteria. The no action alternative is implementable and no costs are associated with it. This should be reflected in the table.

12. **Tables 2-10, 2-11, and 2-12**. These tables evaluate process options based on their effectiveness. The text does not state whether or not the process options achieve remedial action objectives. According to EPA guidance (EPA, 1988) the evaluation of a process option's effectiveness should consider the following:

    - whether or not the process will be effective in handling the estimated ares or volumes of media and meeting the remedial action objectives
    - the potential impacts to human health and the environment during the construction and implementation phase
    - whether or not the process is proven and reliable with respect to site conditions

13. **Table 2-11, Page 1 of 7**. This table summarizes the initial screening of process options for OU-1 soil. The evaluation of the no action alternative implies that implementability and cost are not applicable to this option; however, all options should be evaluated against all criteria. Also, effectiveness of the no action alternative is not evaluated according to key

points outlined in EPA guidance (EPA, 1988). The no action alternative is not effective with respect to these points. Also, the no action alternative is implementable and no costs are associated with it. These items should be reflected in the table.

14. **Section 3.1, Page 3-3, Paragraph 1**. The section on development and screening of groundwater alternatives C1 through C3 does not discuss how the number of extraction wells for each alternative was developed. There should be some explanation of why two vertical extraction wells, as opposed to one or three wells, were selected for analysis.

15. **Section 3.1, Page 3-4 and Table 3-1**. The statement is made that "engineering judgement" was used to rule out injection. Engineering judgement is not sufficient evidence to rule out this alternative. Computer modeling should be performed to show that injection does not appreciably and/or cost-effectively affect attenuation pattern of contaminants.

16. **Section 4.2, Page 4-4**. A discussion of each appropriate action-specific ARAR should be included for each remedial alternative presented.

17. **Section 4.2.1.2, Page 4-6, Paragraph 5**. The text indicates that for alternatives C1 and C3 one extraction well would be installed through the center of the old plant (CPC) landfill to accelerate removal of organics. The report should address the advisability of drilling a well through the landfill and the relative advantages of this option as opposed to locating the well immediately adjacent to the landfill. The alternative should also provide for the possibility of locating the well in another location should one of the soil alternatives for remediation of the landfill be selected in conjunction with one of the groundwater extraction alternatives.

18. **Section 4.2.2.3, Page 4-19, Paragraph 2**. When presenting the various soil alternatives, it would be helpful to discuss in the introductory paragraph the relative advantage or disadvantage of each successive alternative, as appropriate, at least in terms of potential effectiveness. For example, it is assumed that alternative E, ex-situ stabilization-solidification may be more effective than alternative D, in-situ stabilization-solidification. This rationale is not readily apparent in the detailed analysis or in the comparative analysis.

19. Section 4.2.3.1, Page 4-30. The text discusses natural recovery as a possible remedial alternative. It is suggested that studies to determine the sedimentation rate of the basin would significantly assist evaluation of natural recovery as a possible remedial alternative. From this data, an estimate of the number of years required to cover the existing basin sediments naturally can be made.

20. Section 4.2.3.2, Page 4-33, Paragraph 1. The text indicates that OU-2 sediment alternative B, institutional actions, would control the ingestion of fish by humans. It should be noted that this alternative would not restrict the movement of fish between the basin and the Tombigbee River. Therefore, the potential still would exist for human consumption of contaminated fish.

21. Section 4.2.3.3, Page 4-35, Paragraph 1. The text states that as a result of OU-2 sediment alternative C, backfilling, the remaining low-lying area would become a wetland. The text should clarify whether or not the alternative assumes that the area will become a wetland area naturally or if human intervention is required. If human intervention is required, the text should provide further discussion on the activities required for wetland construction as well as provide a cost estimate for the costs associated with wetland construction, such as revegetation and technical consultation.

22. Section 4.3.1, Page 4-62, Paragraph 2. The text states that the remedial action objectives for OU-1 could be achieved either by the soil remediation alternatives or by accelerated groundwater removal. As presented, the report seems to rule out the possibility of selecting both groundwater and soil alternatives. The report should provide a basis for comparative analysis of soil alternatives implemented in conjunction with groundwater alternatives.

23. Section 4.2.3.5, Page 4-43, Paragraph 1. This paragraph states that dewatered sediments would probably not be hazardous waste and the on-site landfill could be constructed according to solid waste regulations. Analytical results indicate that hexachlorobenzene and mercury are present in the sediments at levels above the RCRA Land Disposal Restrictions. These sediments possibly could require treatment prior to disposal as hazardous wastes; thus the cost of this option could increase significantly. Data should be provided to prove that the sediments can be appropriately handled as a solid waste. This issue should also be considered in other process options that include on-site disposal.

24. **Section 4.2.3.9, Page 4-59, Paragraph 2**. This paragraph states that incinerator ash would not be classified as hazardous waste and the on-site landfill could be constructed as a solid waste landfill. No supporting evidence is provided to prove that ash would not be a hazardous waste. This should be clarified.

25. **Appendix D, Page D-3, Paragraph 2**. This paragraph states that unlisted costs make up a percentage of listed direct cost items. Based on examination of the tables, the percentage varies depending on media. The method of determining this percentage and factors affecting it should be discussed here. Unlisted costs are a significant portion of direct costs and inconsistent applications can affect the variability enough to influence cost comparisons.

    In addition, the tables in this appendix present costs for "unlisted items". If the unlisted items vary throughout the tables, a footnote should be included for each table indicating what the unlisted items are.

26. **Appendix D, Tables 1 and 2**. Costs for well installation are presented in these tables. The costs for well installation are presented in two different units between the tables. Also, no mobilization and demobilization costs are presented in Table 1. These discrepancies should be resolved or clarified.

27. **Appendix D**. Tables showing cost estimates for remedial components are presented in this section. Specific sources of unit costs are not included in the report. These should be provided in order to document and substantiate costs.

28. **Appendix D, Table 13**. This table lists costs of construction items for institutional actions. The table shows costs for item 6, but no description of item 6 is included. This discrepancy should be resolved.

REFERENCES

U.S. Environmental Protection Agency (EPA). 1990. "Administrative Order by Consent for Remedial Investigation and Feasibility Study". EPA Docket No. 90-13-C (May).

U.S. EPA. 1988. "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA". Office of Remedial and Emergency Response, OSWER Directive 9355.2-01, EPA/540/G-89/004 (October).

Woodward-Clyde Consultants, Inc. 1993. "Draft Remedial Investigation Report, McIntosh Plant Site, Olin Corporation, McIntosh, Alabama". (February).